Hemoglobin C

C

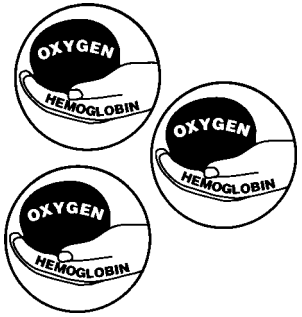
Cover

To understand hemoglobin C, it is helpful to understand a little more about our blood. Hemoglobin C affects a part of the blood called hemoglobin.

Hemoglobin

One role of the blood is to take the oxygen from the air in the lungs and bring it to all parts of the body. The part of the blood that does this job is the red blood cell.

Hemoglobin is the part of the red blood cell that carries the oxygen.

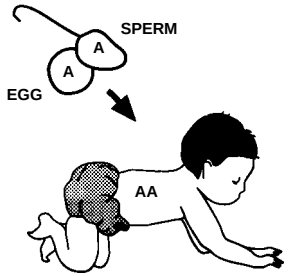


HEMOGLOBIN IN RED BLOOD CELLS CARRIES THE OXYGEN.

The way hemoglobin is made in the body depends on the **genes** a child inherits from both parents. A gene carries instructions, like what color the child's skin or eyes will be. Different genes carry different instructions.

We can inherit genes which cause unusual types of hemoglobin to be made, or genes which interfere with the amount of hemoglobin made.

The usual adult hemoglobin is called hemoglobin A. The less common types of hemoglobin are named by letters, such as hemoglobin C, hemoglobin S (sickle hemoglobin), or sometimes by names such as hemoglobin Bart's.



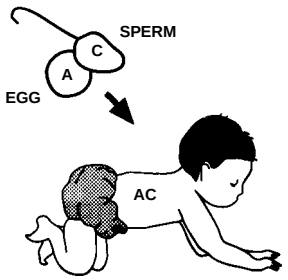
GENES IN THE SPERM OF THE FATHER AND THE EGG OF THE MOTHER DETERMINE THE TYPE OF HEMOGLOBIN.

What is Hemoglobin C?

Hemoglobin C is a type of hemoglobin that is common in people of African ancestry including West Indians and African Americans. It is sometimes present in people with ancestors from Mexico, Central and South America, as well as Italy and some areas of the Middle East.

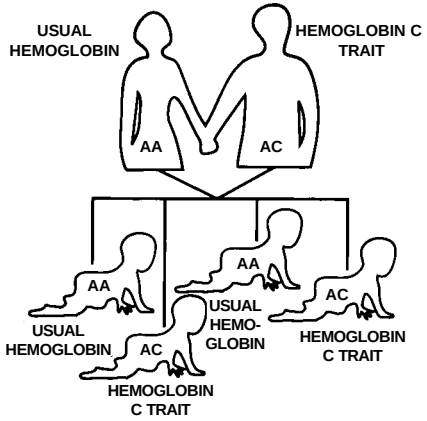
Hemoglobin C Trait

Each child inherits one set of genes from their mother and one from their father that instructs the body how to make hemoglobin. If an individual inherits one gene for the usual hemoglobin A and one gene for hemoglobin C, they are said to have hemoglobin C trait.



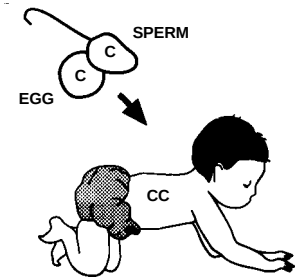
HEMOGLOBIN C TRAIT IS **NOT** A DISEASE AND DOES NOT AFFECT A PERSON'S MENTAL OR PHYSICAL HEALTH.

People with hemoglobin C trait may pass the hemoglobin C gene to their children. If only one parent has hemoglobin C trait, there is a 50/50 chance that the children might inherit the trait. The chances are the same with each pregnancy.



Homozygous C (Hemoglobin CC)

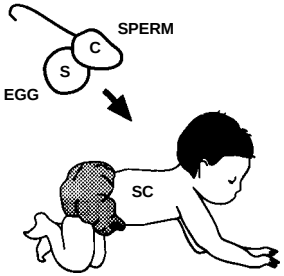
If a person inherits the hemoglobin C gene from **both** parents, only hemoglobin C is made in the body.



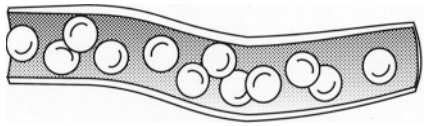
When only hemoglobin C is present, the red blood cells are broken down in the body faster than usual. This causes mild to moderate anemia which means that there are fewer red blood cells and less hemoglobin than usual. Most people with hemoglobin C disease have no serious health problems. They should, however, be followed by a doctor because sometimes an enlarged spleen, jaundice, or gallstones can occur.

Hemoglobin Sickle C Disease

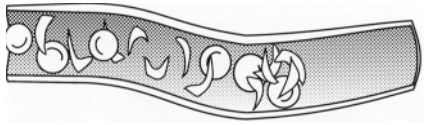
Hemoglobin Sickle C disease occurs when a person inherits a gene for sickle hemoglobin (hemoglobin S) from one parent and a gene for hemoglobin C from the other parent.



This causes the red blood cells to sometimes change from a very flexible round shape into a rigid crescent or "sickle" shape. Sickle-shaped red blood cells can prevent the usual flow of blood and oxygen to body organs.



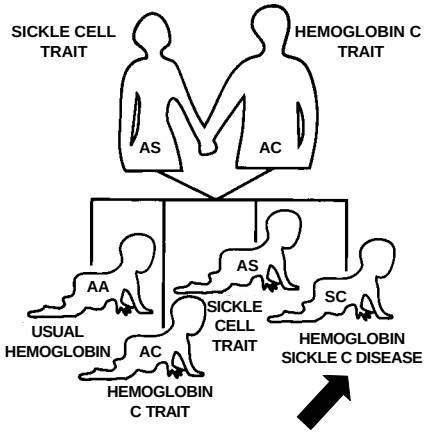
ROUND RED BLOOD CELLS FLOW THROUGH SMALL BLOOD VESSELS.



SICKLE-SHAPED RED BLOOD CELLS CAN BLOCK THE FLOW OF BLOOD IN SMALL BLOOD VESSELS.

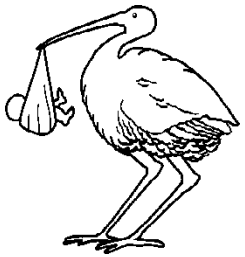
Symptoms of Hemoglobin Sickle C disease include a higher risk for certain infections to occur and can also include painful episodes and an enlarged spleen. Hemoglobin Sickle C disease does not affect intelligence. There is no cure for Hemoglobin Sickle C disease, but there are treatments for the problems caused by the disease. It is very important that people with Hemoglobin Sickle C disease receive regular medical care.

When one parent has sickle cell trait and the other parent has hemoglobin C trait, there is a one-in-four (25%) chance that their child will have Hemoglobin Sickle C disease. They might also have a child with sickle cell trait (1-in-4, or 25% chance), hemoglobin C trait (1-in-4, or 25% chance), or a child with the usual hemoglobin (1-in-4, or 25% chance). The chances are the same with each pregnancy.



A simple blood test can determine a person's hemoglobin genes and their chance for having a child with Hemoglobin Sickle C disease. Also, if a couple is found to be at risk for having an affected child, a woman can have testing as early as the second month of pregnancy to see if the baby has Hemoglobin Sickle C disease.

It can be helpful for people to know about their hemoglobin type so they can make informed decisions regarding family planning. Testing and counseling can be arranged, and questions answered about hemoglobin C or any other kind of inherited hemoglobin condition by contacting:



Newborn Screening Program
1610 NE 150th Street
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Washington State Department of Health

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